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The Meanings of Botanical Names

JOHN M. FOGG, JR.

This effort has been stimulated by numerous requests from our students for a list of the meanings of the specific names applied to woody plants cultivated in eastern temperate North America. It has no pretentions of being complete, nor could it well be, since new species and varieties are constantly being introduced into our horticulture. It should, however, serve the function of rendering into English the meanings of the vast majority of botanical names applied to the trees, shrubs and woody vines grown in our arboreta and botanical gardens.

Every plant has at least two names. The first (the name of the genus) is a noun; the second (the name of the species) is usually an adjective, either in Latin or Latinized form, agreeing with the genus in number and gender. Thus, in the binomial *Quercus alba, Quercus* is the name of the genus (of all oaks) and *alba* is the adjective (meaning white) which applies to this particular species.

Below the rank of the species there may be such categories as varieties and forms, to mention only two. The names applied to these conform to the same rules which operate at the specific level. For example in the combination *Sassafras albidum* var. *molle,* the third name describes a variety of the common American sassafras in which the leaves are soft-hairy beneath.

The specific names of plants fall into a number of groups and since not all of these will be explained in the list which follows it will be desirable to consider each in turn.

1. *Generic names used for species.* Some of the earlier botanists occasionally employed the name of a genus to designate a species. In so doing they were attempting to convey the impression that a given species embodied the characteristics of another genus. For example, the Swedish botanist, Linnaeus, applied the binomial *Pinus Strobus* to our eastern white pine. Now *Strobus* is the name of another genus of conifers and, although it is no longer recognized, the name is still retained as a specific epithet. It is a noun or substantive, rather than an adjective, and as such is not declined. For this reason it is advisable that it should be capitalized in order to avoid the confusion which would result if it were considered as an adjective. As L. H. Bailey has pointed out, the capitalizing of these substantives "is not only essential to the truth but to the dignity and significance of language."

Other familiar examples are *Picea Abies, Mahonia Aquifolium, Carpinus Betulus, Lonicera Caprifolium, Quercus Ilex, Prunus Laurocerasus, Aesculus Pavia, Prunus Persica, Robinia Pseudoacacia, Thymus Serpyllum* and *Lonicera Xylosteum.* Such epithets, when they appear in the following list, will be designated merely as "Generic name."

2. *Native names.* The specific names of several plants are adopted from native languages. Hence we have *Cedrus Deodara, Acer Ginnala, Diospyros Kaki, Prunus Mume, Picea Omorika* to mention only a few. These also are nouns, can not be declined, and, to avoid confusion, should be capitalized. In the following list they are designated as "Native name."

3. *Personal names.* Many plant species are named after the man or woman who discovered or described them or in honor of some distinguished person, usually, though not always, a botanist. Again, as in the two preceding categories, it is felt by many of us that such names should be capitalized. Thus we have *Rubus Baileyanus, Pinus Banksiana* and *Acer Buergerianum.* It will be noted that the specific names here cited also agree with the genus in gender and number. When such names honor more than one person they terminate in the plural, e.g. *Faxonorum,* for the Faxon brothers.

Another group of personal commemoratives end in *ii* when masculine (*Sargentii* and *Thunbergii,* for Charles S. Sargent and Carl Peter Thunberg) or *iae* when feminine (*Banksiae* for Lady Banks.) Exceptions to the above principle exist: (a) when the name ends in *er*, e.g., *Watereri,* (b) when it terminates in *e,* e.g., *Bealei,* or (c) when the final letter is *y,* e.g., *Canbyi.* In these cases the double *i* would be both superfluous and difficult to pronounce. Personal names will *not* be included in the following list.

4. *Geographic names.* Some plant species bear the name of the locality where they were first found or a region from which they are believed to be representative. Such names as *americanus, babylonicus, carolinianus, europaeus, japonicus, philadelphicus, virginianus*, etc. are entirely self-explanatory and will not be found in the list. A few less obvious ones, such as *andeleyensis, jezoensis* and *marianus*, will be included and their meanings explained. Geographic names are *not* capitalized.

5. *Descriptive names.* The great majority of specific names are adjectives which denote or describe some attribute of the plant to which they are applied. These may concern the habit or shape of the plant or any of its parts, the color of the leaves or flowers, the plant's habitat (whether sea-side, fields, woods, marshes, etc.) or other salient features such as poisonous, edible, medicinally valuable, aromatic, useful in dyeing, late-flowering, etc.

As already indicated, these names should agree with the genus in gender and number. The first declension of Latin adjectives ends in *us* (masculine), *a* (feminine) and *um* (neuter). Thus we have *Symphoricarpus albus, Rosa alba* and *Sedum album.* Since most trees are feminine in Latin we find such binomials as *Pinus rigida, Quercus alba, Juglans cinerea* and *Fraxinus americana.* However certain exceptions occur, e.g., all generic names ending in *-anthus* are masculine (hence *Chionanthus virginicus)* and those terminating in *-dendron* are neuter (hence *Rhododendron maximum).* For some strange reason the genus *Acer* is also neuter, so we have *A. palmatum, A. rubrum, A. pennsylvanicum,* etc.)

Another declension of Latin adjectives ends in *is, is* and *e;* thus we find *vulgaris, vulgaris,* and *vulgare,* for masculine, feminine and neuter respectively. Still another and somewhat irregular declension gives us *niger, nigra* and *nigrum* or *glaber, glabra* and *glabrum*. A few Latin adjectives retain the same spelling in all three genders, e.g., *nutans* and *filifera*. In the list which follows all of the specific names will be given only in the masculine form.

INDEX TO NAMES

Abies: Generic name.
abietinus: Resembling *Abies,* the fir or balsam.
acerifolius: With leaves like *Acer,* maple.
acaulis: Stemless.
aconitifolius: With leaves like *Aconitum*, aconite, monkshood.
acicularis: Needle-like, very narrow and sharply pointed.
aculeatus: Prickly.
acuminatus: Long-pointed, tapering.
acutifolius: With acute or sharp-pointed leaves.
acutissimus: Very acute or very sharp, as of the tip of a leaf.
adenophorus: Bearing glands.
adpressus: Pressed against, as leaves close to the stem.
adstringens: Constricted.
adsurgens: Ascending.
aestivalis: Pertaining to summer.
affinis: Related (to another species).
aggregatus: Aggregate, clustered.
agrifolius: With leaves like holly.
alatamaha: From the Alatamaha River, Georgia.
alatus: Winged, usually referring to flanges of cork on the stem.
albertianus: Of the province of Alberta, Canada.
albidus: White.
albiflorus: With white flowers.
albo-spicus: With white spikes or tips.
albus: White.
alienus: Alien, foreign.
almus: Bountiful.
alnifolius: With leaves like *Alnus,* alder.
alpinus: Alpine, growing on mountains above the tree-line.
alternifolius: With alternate leaves.
altissimus: Very tall, tallest.
amabilis: Lovely.
amarus: Bitter.
ambigens: Ambiguous.
ambiguus: Ambiguous, doubtful.
amblyanthus: With dull flowers.
amoenus: Charming, pleasing.
Amomum: Generic name.
amurensis: Of the Amur River region in Northeastern Asia.
Amygdalus: Generic name.
anagyroides: Resembling *Anagyris,* a genus in the Leguminosae.
andelyensis: Of Les Andelys, France.
angustifolius: With narrow leaves.
anomalus: Out of the ordinary or usual.
apetalus: Without petals.
apiculatus: Tipped with a sharp point.
apiifolius: With leaves like *Apium,* celery.
applanatus: Flattened.
Aquifolium: Generic name.
arachnoides: Spider-like, cobwebby.
aralioides: Resembling *Aralia,* a genus in the Araliaceae.
araucanus: From Arau, Chile.
arborescens: Becoming tree-like or almost the size of a tree.
arboreus: Tree-like or pertaining to a tree.
arbutifolius: With leaves like *Arbutus,* a genus in the Ericaceae.
areolatus: Pitted.
argenteus: Silvery, silvered.
argento-marginatus: With silver or whitish margins, as of the leaf.
argutus: Sharp-toothed, as of the margin of a leaf.
argyraeus: Silvery.
aristatus: Bearded or with long awns.
armatus: Armed, as with thorns or sharp teeth.
Armeniaca: Generic name.
aromaticus: Aromatic, fragrant.

articulatus: Jointed.
arvensis: Of cultivated fields.
ascendens. Ascending, usually with upright leaves or branches.
asper, aspera, asperum: Rough, as with hairs on the leaves.
asperatus: Rough, harsh.
asplenifolius: With leaves like *Asplenium,* a fern.
assimilis: Similar or like.
atalantioides: Resembling *Atalanta,* a genus in the Capparidaceae.
atlanticus: Atlantic, growing in the Atlantic region.
atriplicifolius: With leaves like *Atriplex,* a genus in the Chenopodiaceae.
atrococcus: With dark scarlet fruit.
atropuniceus: Dark reddish-purple.
atropurpureus: Dark purple.
atrorubens: Dark red.
atrovirens: Dark green.
aurantiacus: Orange-colored.
aurescens: Becoming golden.
aureus: Golden.
auriculatus: Eared or lobed.
australis: Southern.
autumnalis: Autumnal, of autumn.
Avellana: Generic name.
avium: Of the birds.
axillaris: Axillary, borne in the axils of leaves or branches.
azureus: Azure, sky-blue.
baccatus: With berries.
babylonicus: Of Babylon, although in some cases wrongly assigned.
balearicus: Of the Baleric Islands.
balsameus: With the fragrance of aromatic resins.
balsamifera: With the fragrance of balsam.
barbarus: Foreign or of Barbary, originally supposed to be African.
Benzoin: Generic name.
barbinervis: With bearded or pubescent nerves or veins.
basillaris: Pertaining to the base or bottom.
bellus: Handsome, beautiful.
betulifolius: With leaves like *Betula,* birch.
Betulus: Generic name.
bicolor: Two-colored.
bifidus: Twice cut or lobed, as of the leaf.
bignonioides: Resembling *Bignonia,* a genus in the Bignoniaceae.
bilobus: two-lobed.
bitchiuensis: From a region in Japan.
bodnantensis: Of the Bodnant Gardens in Wales.
bonariensis: Of Buenos Aires.
Borbonia: Generic name.
borealis: Northern.
botrys: A cluster, as of a bunch of grapes.
brachycarpus: With short fruit.
brachycera: Short-horned.
brachyphyllus: With short leaves.
bracteatus: Bearing bracts.
brevicaulis: With short stems.
brevifolius: With short leaves.
brevipedunculatus: With a short peduncle or flower-stalk.
brevipes: With a short foot or stalk, referring usually to the stalk or peduncle of the inflorescence.
brevirameus: With short branches.
brilliantissimus: Very brilliant.
buddleifolius: With leaves like *Buddleia,* butterfly-bush.
bullatus: Blistered, puckered, swollen.
buxifolius: With leaves like *Buxus*, boxwood.
caeruleus: Sky-blue or dark blue.
calendulaceus: With reference to *Calendula*, a yellow-flowered genus in the Compositae.
callianthus: With beautiful flowers.
calocarpus: With beautiful fruit.
calycinus: Resembling the calyx.
calyculatus: Resembling the calyx.
campanulatus: Bell-shaped or bell-flowered.
campestris: Of fields or plains.
canaliculatus: Channeled or grooved.
candicans: White, white-hairy or woolly.
candidus: White, with white hairs or shining.
candidissimus: Very white or most white.
candidulus: White or whitish.
canescens: Becoming grey-pubescent or hairy, said usually of leaves.
caninus: Canine, pertaining to a dog.
cantabricus: Of Cantabria (a section of northern Spain).
canus: Ash-colored, gray-pubescent.
capillipes: With a slender stalk.
capitatus: In heads, usually as of the inflorescence.
cappadocicus: Of Cappadocica in Asia Minor.
caprea: From the she-goat, who is said to be fond of the leaves.
capreolatus: Winding, twisting.
Caprifolium: Generic name.
carinatus: Keeled, ridged.
carneus: Flesh-colored, pinkish.
carpinifolius: With leaves like *Carpinus,* hornbeam, ironwood.
cassinoides: Like *Ilex Cassine,* a species in the Aquifoliaceae.
catawbiensis: From the Catawba area in North Carolina.
catharticus: Cathartic, purging.
caudatus: Caudate, tailed, with a long tapering tip.
Cembra: Native name.
cembroides: Resembling *Pinus Cembra,* the Swiss stone pine.
centifolius: With a hundred leaves— a slight exaggeration.
cephalonicus: Of Cephalonia, one of the Ionian islands.
cercidifolius: With leaves like *Cercis*, red-bud.
cerifera: Wax bearing.
cernuus: Drooping, nodding.
Cerris: Generic name.
chloranthus: With green flowers.
chrysanthus: With yellow flowers.
chrysocomus: With golden or yellow hairs.
ciliospinosus: With ciliate or spiny margins.
ciliosus: Fringed with hairs.
cinctus: Girdled.
cinereus: Ash-colored.

circinatus: Circinate, coiled.
cirrhosus: With tendrils.
cissifolius: With leaves like *Cissus,* a genus in the Vitaceae.
clarus: Clear.
clavatus: Club-shaped.
Cneorum: Generic name.
coarctatus: Crowded together, ascending.
coccifera: Bearing berries.
coccineus: Scarlet.
colchicus: Of Colchis, an eastern Black Sea region.
collinus: Of a hill or pertaining to a hill.
columnaris: Columnar, upright-cylindrical.
Colurna: Native name.
communis: Gregarious, usually assumed to mean common or ubiquitous.
commutatus: Changed or changing.
comosus: With long hairs.
compactus: Compact, dense.
compressus: Compressed, flattened.
concolor: Colored similarly, as of the two surfaces of the leaf.
confertus: Crowded.
congestus: Congested, crowded.
conglomeratus: Crowded together.
conicus: Conical.
conspersus: Scattered.
conspicuus: Conspicuous, marked, visible.
contortus: Contorted, twisted.
controversus: Controversial or uncertain, unusual.
copallinus: Resembling copal or resin.
corallinus: Coral-red.
cordatus: Heart-shaped, usually said of leaves.
cordiformis: Heart-shaped.
cornutus: Horned or with a long tapering beak.
coronarius: Resembling a crown or garland.
corymbosus: With flowers in a corymb or flat-topped inflorescence.
costatus: Ribbed, grooved.
cotinifolius: With leaves like *Cotinus,* a genus in the Anacardiaceae.
crassifolius: With thick leaves.
crataegifolius: With leaves like *Crataegus,* hawthorn.
crebrus: Frequent, repeated.
crinitus: Hairy.
crispus: Crisped, curled, as of the leaf margin.
crenatus: Crenate, scalloped.
cristatus: Crested, with a crest.
crus-galli: Cockspur.
cuneatus: Wedge-shaped.
cuspidatus: With a cusp or sharp stiff point.
cyaneus: Blue.
cyano-viridis: Blue-green.
cylindricus: Cylindrical, as of the shape of a tree or of an inflorescence.
cymosus: With flowers in a cyme, an inflorescence in which the terminal flowers bloom first.
damascenus: Of Damascus.
dalecarlicus: Of the province of Dalecarlica in Sweden.
dasyanthus: With thick hairy flowers.
dasystylus: With thick hairy styles.
debilis: Weak, frail.
deciduus: Shedding its leaves in the autumn.
decipiens: Deceptive.
decorus: Elegant, comely.
decurrens: Running down the stem, as the base of a leaf.
deltoides: Triangular, as of a leaf.
demissus: Low, weak.
densiflorus: Densely flowered.
dentatus: Toothed, as the margin of a leaf.
denudatus: Naked.
Deodara: Native name.
depressus: Depressed or of low spreading habit.
dichotomus: Forked in pairs.
diffusus: Spreading.
dioicus: Dioecious, with the sexes on separate plants.
dilatatus: Dilated or expanded.
dipterus: With two wings.
discolor: Of two or of different colors, as the two surfaces of a leaf.
dissectus: Deeply cut or lobed.
distichus: Two-ranked, with flowers or leaves in ranks on opposite sides of stem.
divaricatus: Spreading, widely divergent.
diversifolius: With variable or widely differing leaves.
dolobratus: Mattock-shaped or hatchet-shaped.
domesticus: Domesticated or cultivated.
drupaceus: Drupe-like or resembling a stone fruit, but may be a seed.
dulcis: Sweet.
durior: Harder.
editorum: Of the editors.
edulis: Edible.
effusus: Loose-spreading, as of an inflorescence.
elatior: Taller.
elatus: Tall.
elegans: Elegant, handsome.
ellipticus: Elliptic.
elongatus: Elongated, lengthened.
emarginatus: With a shallow notch at the tip or apex, as of a leaf.
emodi: From Emodus in the Himalayas.
erosus: Erose, as if gnawed or eaten, ragged.
eriocarpus: With woolly fruit.
erythrocarpus: With red fruit.
esculentus: Edible.
euchlorus: Beautiful green.
excelsior: Taller, higher.
falcatus: Sickle-shaped or scythe-shaped.
fallax: False or deceptive.
farinosus: Mealy.
fastigiatus: Fastigiate, with branches erect and close together.
fertilis: Fertile, fruitful.
filamentosus: Filamentous, composed of threads or bearing threads.
filifera: Bearing filaments or threads.
firmus: Firm, strong.
fistulosus: Hollow, cylindrical.

flaccidus: (pronounced flak-sidus) Soft.
flavescens: Yellowish, becoming yellow.
flavus: Yellow.
flexilis: Flexible, pliant, limber.
flexuosus: Flexuous, tortuous.
floccosus: With soft woolly pubescence.
florentinus: Of Florence.
flore-pleno: With full or double flowers.
floribundus: Free-flowering, blooming abundantly.
floridus: Flowering, full-flowered.
foeminus: Feminine.
foetidus: Fetid, evil-smelling.
formosanus: Of Formosa, Taiwan.
formosus: Beautiful, handsome.
foveolatus: Pitted, with minute depressions.
fragilis: Fragile, brittle.
fragrans: Fragrant.
fragrantissimus: Very fragrant.
fraxinifolius: With leaves like *Fraxinus,* ash.
frigidus: Of cold regions.
frondosus: Leafy.
frutescens: Shrubby.
fruticans: Shrubby.
fruticosus: Shrubby, shrub-like.
fulgens: Shining, glistening.
fulvus: Tawny, grayish-yellow
fuscatus: Dark brown.
geniculatus: Bent like a knee.
genistifolius: With leaves like *Genista,* broom.
gibbus: Swollen on one side.
giganteus: Gigantic, very large.
Ginnala: Native name.
glabellus: Smoothish.
glaber, glabra, glabrum: Glabrous, smooth, without hairs.
glabratus: Somewhat smooth or glabrous.
glabrescens: Smooth, becoming smooth.
glandulifera: bearing glands.
glaucescens: Becoming glaucous.
glaucophyllus: With glaucous or bluish-green leaves.
glaucus: With a bloom, bluish green.
globosus: Spherical or globular.
glomeratus: Clustered or closely crowded together, as an inflorescence.
glutinosus: Glutinous, sticky.
glyptostroboides: Resembling *Glyptostrobus,* a genus in the Pinaceae.
gracilis: Graceful, slender.
gracilistylus: With slender styles.
graecus: Of Greece.
Granatum: Generic name.
grandidentatus: With large or coarse teeth.
grandiflorus: With large flowers.
grandifolius: With large leaves.
grandis: Large, big.
griseus: Gray.
grosseserratus: With large or coarse teeth, as of the leaf margin.
guttatus: Spotted or speckled.
halapensis: Of Aleppo, ancient region east of the Mediterranean.
halimifolius: With leaves like *Halimium,* a genus in the Cistaceae.
halodendron: Literally salt-tree.
hastatus: Spear-shaped, halberd-shaped.
Helix: Generic name.
heracleifolius: With leaves like *Heracleum,* a genus in the Umbelliferae.
heptalobus: With seven lobes.
heterophyllus: Various-leaved, with leaves of different shapes on the same plant.
hians: Open, gaping.
hibernicus: Of Ireland.
Hippocastanum: Generic name.
hirsutus: Pubescent with coarse, stiff hairs.
hirtellus: Somewhat coarse-hairy.
hispidus: Bristly, rough-hairy.
holophyllus: With entire leaves.
holotrichus: With similar hairs.
homolepis: With homologous or similar scales.
hondoensis: From Hondo, Japan.
horizontalis: Horizontal or low-branching.
hortensis: Belonging to a garden.
humifusus: Spread on the surface of the ground.
humilis: Low-growing, dwarf.
hupehensis: From Hupeh Province, China.
hyacinthiflorus: With flowers like *Hyacinthus,* hyacinth.
hybridus: hybrid, mixed, mongrel.
hydrangeoides: Resembling *Hydrangea.*
hyemalis: Of winter.
hypoglaucus: Glaucous or bluish-green beneath, somewhat glaucous.
hypoleucus: Whitish.
ibericus: Of Iberia, the Spanish peninsula.
Ibota: Generic name.
idaeus: Of Mt. Ida.
Ilex: Generic name.
ilicifolius: With leaves like *Ilex,* holly.
illicebrosus: Of the shade.
imbricarius: Imbricated, overlapping, shingled, as of bud-scales.
imbricatus: Same as above.
impeditus: Impeded, hindered.
incanus: Hoary, with whitish pubescence.
incarnatus: Flesh-colored.
incisifolius: With cut or incised leaves.
incisus: Incised, cut, deeply lobed, as of certain leaves.
indicus: Of India or the East Indies, or, in an earlier sense, merely eastern.
inermis: Unarmed, without thorns or spines.
infectorius: Used for dyeing or pertaining to dyes.
insignis: Remarkable, distinguished.
integerrimus: Quite entire, as the margin of a leaf.
integrifolius: With entire leaves.
intermedius: Intermediate, usually between two other species.
intricatus: Intricate or entangled.

involucratus: Involucred or with a set of bracts or modified leaves below the flowers.
jasminoides: Resembling *Jasminum,* jasmine.
Jujuba: Generic name.
jubatus: Crested.
juniperoides: Resembling *Juniperus,* juniper.
Kaki: Native name.
kalmiaeflorus: With flowers like *Kalmia,* a genus in the Ericaceae.
Kobus: Native name.
Kousa: Native name.
Koyomai: Native name.
laciniatus: Slashed, deeply cut, as of a leaf.
lacteus: Milk-white.
lacustris: Of lakes.
laetivirens: Bright green.
laevigatus: Smooth.
lagenarius: Resembling a bottle or a flask.
lanceolatus: Lanceolate, said of a leaf which is several times longer than broad and tapers toward both ends.
lanuginosus: Woolly, downy.
lasiocarpus: Rough- or woolly-fruited.
lateritius: Dark brick-red.
latifolius: With broad leaves.
latispinus: With broad spines.
Laureola: Generic name.
Laurocerasus: Generic name.
laurifolius: With leaves like *Laurus,* the laurel of the Old World.
laxus: Open, loose, as of an inflorescence.
leiocarpus: With smooth fruit.
lentus: Pliant, tenacious, tough.
leptolepis: With thin scales.
leucanthus: With white flowers.
leucocarpus: With white fruit.
libani: Of Lebanon.
ligustrinus: Resembling *Ligustrum,* privet.
liliflorus: With flowers like *Lilium.*
linearifolius: With linear (long, narrow) leaves.
lineatus: With lines or stripes.
littoralis: Of the seashore.
lobatus: Lobed, as of the margin of a leaf.
longifolius: With long leaves.
Lonicera: Generic name.
Lotus: Generic name.
lucidus: Bright, shining.
lupulinus: Resembling hops.
lusitanicus: Of Portugal.
luteus: Yellow.
lycopodiodes: Resembling *Lycopodium,* the ground pine or club moss.
lyratus: Lyre-shaped.
macranthus: With large flowers.
macrocarpus: With large fruits.
macrocephalus: With a large head (inflorescence).
macrophyllus: With large leaves.
maculatus: Spotted.
magellanicus: Of the Strait of Magellan region.
magnificus: Magnificent, distinguished.
major: Large, larger.
marianus: Of Maryland, formerly used in a broader sense.
maritimus: Maritime, of or close to the sea.
mas: Male.
maximus: Large, largest.
medius: Medium, intermediate (as between two species).
melanocarpus: With black or blackish fruit.
mentorensis: Of Mentor, Ohio.
Mezereum: Generic name.
micromalus: Literally "small apple".
micranthus: With small flowers.
microcarpus: With small fruit.
microphyllus: With small leaves.
miniatus: Cinnabar-red.
minimus: Small.
minor, minus: Very small.
minutus: Minute, very small.
mitis: Mild, gentle.
mollis: With soft, hairy pubescence.
mollissimus: Very soft-hairy.
monadelphus: In one group or bundle, as of the stamens.
Mono: Native name.
monogynus: With one carpel (pistil).
monoicus: Monoecius, with male and female flowers on the same plant.
monophyllus: With one leaf.
monostachyus: With a single stalk or spike.
montanus: Pertaining to mountains or mountainous regions.
monticolus: Inhabiting mountains.
moupinensis: Of Mupin, China.
mucronatus: Mucronate or terminating (as a leaf) in a sharp point or mucro.
mucronulatus: With a small point or mucro.
Mugo: Native name.
multicaulis: With many stems.
multiflorus: With many flowers.
Mume: Native name.
munitus: Armed, fortified.
muricatus: Roughened with hard points.
muscosus: Mossy.
mutabilis: Variable.
myrtifolius: With leaves like *Myrtus,* myrtle.
nanus: Dwarf.
neglectus: Overlooked.
Negundo: Generic name.
nemoralis: Of groves or woods.
nervosus: Nerved, veined.
nictitans: Nodding.
nidiformis: Formed like a nest.
niger, nigra, nigrum: Black.
nikoensis: Of Niko, Japan.
nipponicus: Of Nippon, Japan.
nitens: Shining.
nitidus: Shining.
niveus: Snowy.
nobilis: Noble, famous, renowned.
novaboracensis: Of New York.

(To be continued)

MEXICAN TOUR

From January 11 to February 1, the Director and his wife conducted a group of 24 persons (several of them students present and past of the Arboretum School) on a botanical and horticultural tour of Mexico. The trip was sponsored jointly by the Pennsylvania Horticultural Society and the Horticultural Society of New York.

The party arrived in Mexico City on the afternoon of January 11 and, after a day of sightseeing, departed on the morning of Monday, January 13, for Cuernavaca and Taxco. This ride, which is one of the most spectacular in the country, leads over the pine-clad mountains forming the southern rim of the Valley of Mexico and drops down into fertile plains where sugar cane, rice, bananas and papayas are cultivated. A plant which soon engaged our attention was *Wigandia caracasana.* Although this coarse-leaved species is known as quemadora or nettle, it is a member of the Water-leaf Family or Hydrophyllaceae. It is very widely distributed throughout Mexico and it was interesting to see that Diego Rivera had incorporated it into one of his murals in the Cortés Palace in Cuernavaca.

Another ubiquitous plant, here seen for the first time, was the tree tobacco *(Nicotiana glauca),* a native of South America, with bluish-green leaves and tubular yellow flowers, which has become widely naturalized throughout Mexico. Still another native of South America which is everywhere established in Mexico is the pirúl or pepper tree *(Schinus molle),* with graceful pendant branches and hanging panicles of pinkish fruits. It was on this drive that we saw our first specimens of the calabash tree *(Crescentia alata),* that bizarre member of the Bignoniaceae which produces enormous gourd-like fruits. Of frequent occurrence also were *Bocconia* (a relative of the plume-poppy of our gardens) and the tree morning-glory *(Ipomoea arborescens).* The latter was devoid of foliage at this season, but was adorned with large, white, cup-shaped flowers at the tips of the naked branches. Everywhere here and elsewhere throughout most of Mexico is the Australian "pine" *(Casuarina equisetifolia),* often treated as a hedge plant along the highways.

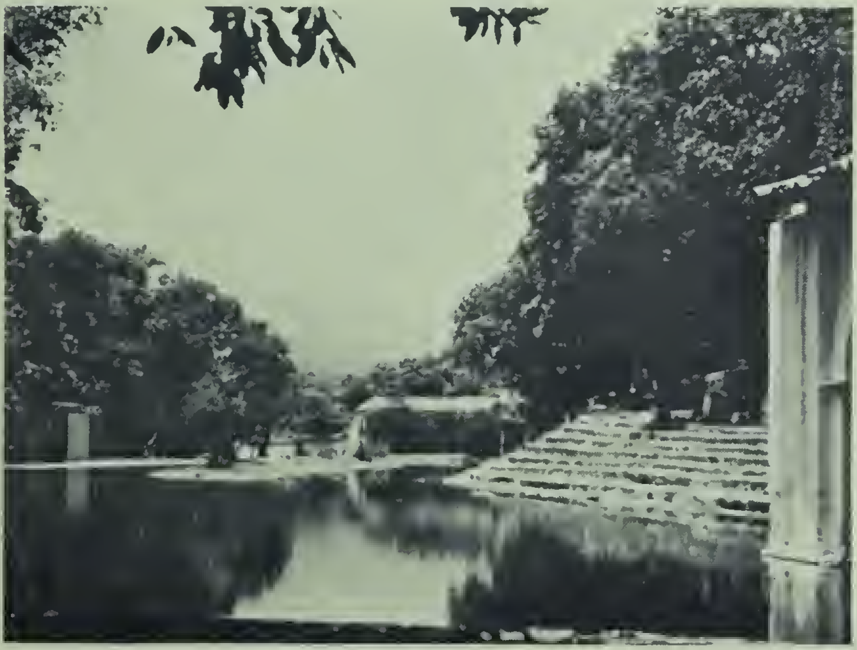

Fig. 1. View in the Borda Gardens, Cuernavaca

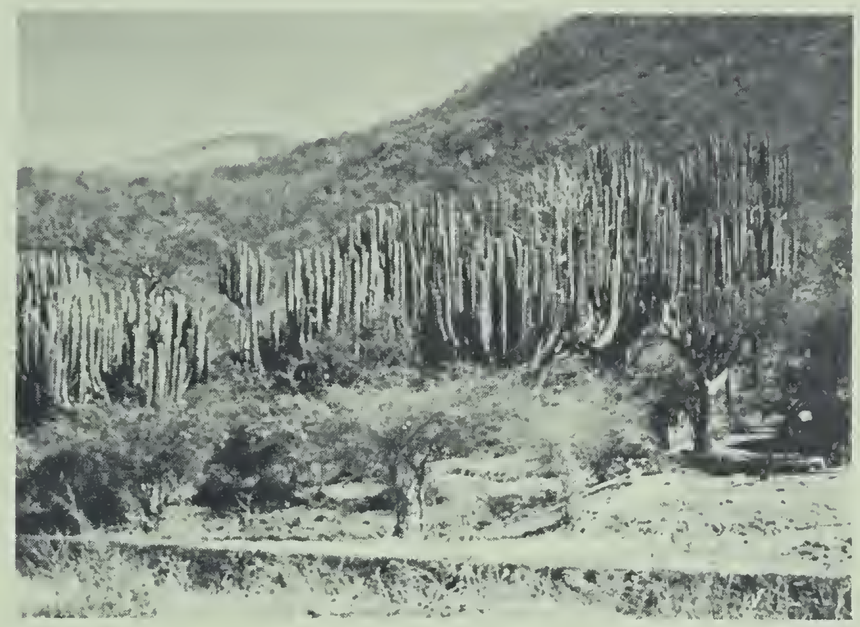

Fig. 2. *Lemaireocereus* in the Canyon of the Vultures

As we neared the outskirts of Cuernavaca a wealth of colorful vegetation greeted us on all sides. Here, in full bloom were the African tulip-tree *(Spathodea campanulata)* and the flame-vine *(Pyrostegia ignea)* both members of the Bignoniaceae. Here were bougainvilleas, in an almost limitless variety of colors, and golden trumpets *(Allamanda cathartica)* with their handsome yellow flowers against a background of glossy foliage. Everywhere, of course, was the native Mexican poinsettia *(Euphorbia pulcherrima),* here attaining the proportions of a small tree. The garden of the Mañanitas Hotel, where we had lunch, was a botanist's paradise, with a rich variety of exotic plants including palms, bamboos, bromeliads, aroids and several important Mexican trees, such as the avocado *(Persea americana)* and the cherimoya *(Annona cherimola).* Following lunch we visited the famous Borda Gardens which had been the idyllic retreat of the ill-fated Empress Carlotta over a century ago (Fig. 1).[1]

South of Cuernavaca, en route to Taxco, the cacti began to manifest themselves. There are several hundred species of this exclusively New World family in Mexico and frequent references to them will be found in this brief chronicle. In this region we saw from the bus mostly the prickly pear type *(Opuntia* spp.) and a candelabra form, probably *Pachycereus grandis.* Also much in evidence was the genus *Agave,* another exclusively American group of which some 160 species are described from Mexico alone. Known in the

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[1] Figs. 1 and 4 by Gladys and Laura Bulmer.

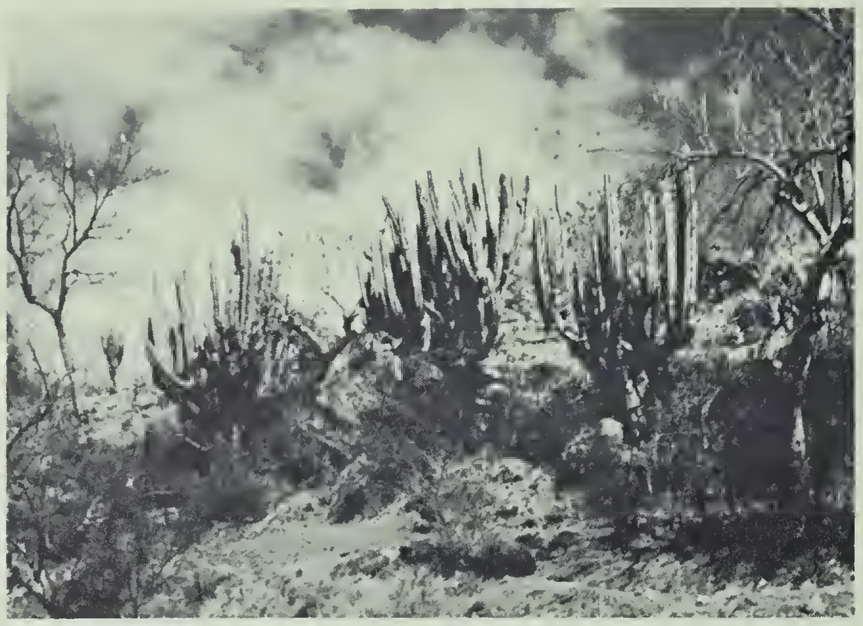

Fig. 3. *Myrtillocactus geometrizans* south of Cuernavaca

United States as century plants and in Mexico as maguey, this genus includes species which are, respectively, the sources of such beverages as pulque, tequila and mesqual; another species from Yucatan provides the hennequin or sisal fibers of such great economic value. A conspicuous small tree with pinkish flowers was *Gliricidia sepium,* a member of the Leguminosae, known locally as mata-ratón or mouse killer, the bark and leaves of which are used as a rat and mouse poison.

The silver capital and shopper's paradise which is Taxco is also a delight to the botanist. Wagers were taken on the bus as to whether, so early in the year, we would see that gorgeous blue-flowered tree, jacaranda in bloom. It was; we won! A native of Brazil, this species, known to botanists as *Jacaranda acutifolia,* is another member of that fabulous tropical family, the Bignoniaceae. Also much in evidence around Taxco was the genus *Buddleia,* known to most of us as butterfly bush. There are more than a score of species of this group in Mexico and while we were too early to see them in flower, most of them may be recognized by their silvery gray foliage. To those who think of maples as having only simple, smooth leaves it was interesting to see around Taxco *Acer serratum*, with pinnately compound densely hairy foliage. Another native plant, widely cultivated here, is *Solandra nitida* or chalice vine, a stunning woody member of the Solanaceae with huge yellowish cup-shaped flowers.

As we drove south from Taxco toward Acapulco we caught our first glimpse of a tree totally devoid of leaves but resplendent with large golden-yellow cup-shaped flowers. This was *Cochlospermum vitifolium,* a member of a monotypic family, known as yellowsilk shellseed from the silky down of the spoon-shaped seeds. The Mexicans call it copa de oro, a name, however, which is also applied to *Allamanda.*

About 50 miles south of Taxco we entered a narrow defile known as the Cañon de los Zopilotes or Canyon of the Vultures. For many miles we drove through an impressive cactus forest made up largely of the tall chiefly unbranched columns of *Neobuxbaumia* and the impressive candelabras of a species of *Lemaireocereus* (Fig. 2). Opuntias were also much in evidence and mingled with the cacti on the hillslopes were the smooth reddish trunks of a species of *Bursera* related to the gumbo-limbo of Florida.

Acapulco, in addition to being Mexico's most popular resort, has much of interest for the botanist. Exotic plants were predominant including such species as breadfruit *(Artocarpus incisa)* and the traveler's palm *(Ravenala madagascariensis),* but there were many interesting native species on the extensive grounds of our hillside hotel. The huge palmately lobed leaves of the tropical American *Cecropia* were all around us; the pochote or kapok tree *(Ceiba pentandra)* was just coming into bloom; and the brilliant scarlet flowers of the colorin (*Erythrina americana*) stood out boldly against the naked branches.

One afternoon we visited the beautifully planted grounds of the Pierre Marques Hotel. Here in addition to many plants previously seen were several palms, a species of *Clusia* (probably *C. rosea*) in full fruit, the sea almond *(Terminalia Catappa),* the sea grape *(Coccoloba uvifera), Pittosporum Tobira* and numerous other pan-tropical forms. Later that afternoon we wandered through a nursery so replete with a wealth of plant material that even the briefest enumeration is out of the question in this account.

Leaving Acapulco on Friday, January 17th, we drove back through Taxco to spend the night in a luxurious new hotel in Ixtapan. Shortly after our arrival the party met for a tour of the grounds which supported a wide variety of interesting plants. In addition to many things we had previously seen, there were borders filled with such succulents as *Kalanchoe, Sedum* and *Echeveria;* ponds resplendent with papyrus, agapanthus and water lilies; and walls covered with leadwort *(Plumbago capensis),* Cape honeysuckle *(Tecomaria capensis)* and *Thunbergia grandiflora.* Not far from the hotel is the National School of Arboriculture, where we saw trees of economic and ornamental importance grown under nursery conditions.

Our drive from Ixtapan to Puebla the following day was a leisurely one and we made several stops to collect and photograph. At one point we were intrigued by a vine with

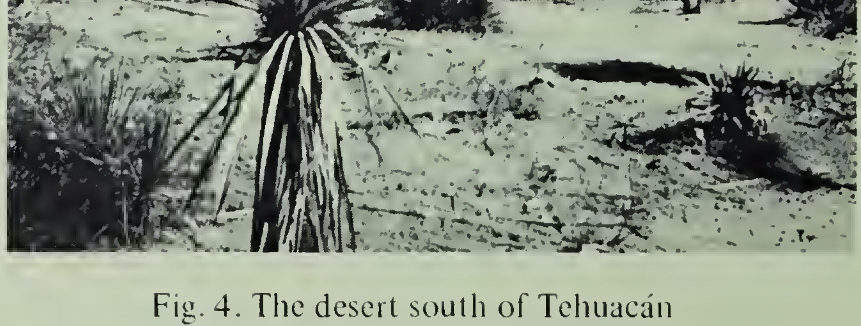

Fig. 4. The desert south of Tehuacán

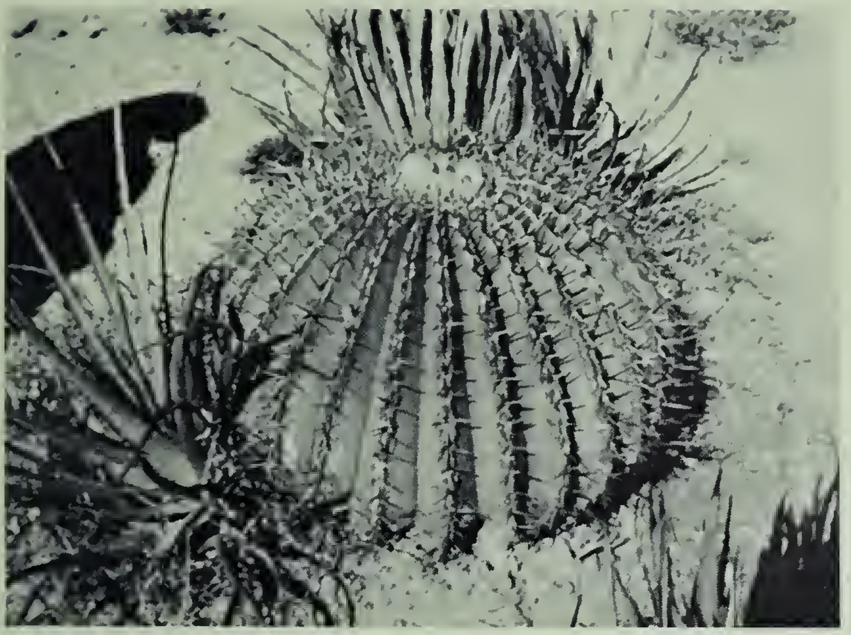

Fig. 5. *Echinocactus grandis* at Tehuacán

drooping clusters of bright pink "flowers" somewhat resembling a bougainvillea. This was *Exogonium bracteatum,* a member of the Convolvulaceae in which it is the enlarged and overlapping bracts that give the plant its showiness. At another stop we paused to examine *Alvaradoa amorphoides,* a shrub belonging to the Simarubaceae or Quassia Family in which the pendulous racemes of pinkish, winged fruit suggest the shrimp plant, a resemblance which is supported by its Spanish name "camarón."

South of Cuernavaca we stopped to inspect at close range another of the candelabra cacti. This one was *Myrtillocactus geometrizans,* a wide-spread species which we were destined to meet again before the tour was over (Fig. 3).

We arrived at our hotel in Puebla about 4 P.M. and once again a late afternoon inspection of the grounds proved to be most rewarding. Here, for example, was a large red-flowered passion-flower (probably *P. incarnata*) in both flower and fruit. Also in fruit was the loquat *(Eriobotrya japonica),* a native of China despite its specific name. *Eucalyptus*, a genus of Australasian origin, is much in evidence in Mexico and this garden supported some truly venerable specimens which we took to be *E. globulus.* Crotons *(Codiaeum)* in variety and *Ixora* were also conspicuous.

Following a morning of sightseeing in Puebla on Sunday, January 19, we continued our drive to Tehuacán and the renowned Spa Peñafiel. It was on this leg of the trip that we first saw *Yucca* in any abundance. This is the Liliaceous genus which includes the bizarre Joshua tree *(Y. brevifolia)* of the Mohave Desert. The true Joshua tree probably does not extend into Mexico, but its place is taken by several other species which, in their stiff grotesque habit, closely resemble it; the one we were now seeing was *Y. filifera.*

The region south of Tehuacán is one of the most famous desert areas in Mexico—the type locality for several species of cacti and other plants (Fig. 4). We spent several ecstatic hours the following morning tramping across it and exclaiming over each new find. A brief list of the cacti includes *Echinocactus grandis* (Fig. 5), *Coryphantha pallida, Ferocactus robustus,* and several species of *Mammillaria,* namely *M. viperina* and *M. collina,* the latter of which was in bloom (Fig. 6). Here was the same *Yucca* we had seen yesterday and the related genus *Beaucarnia* (Fig. 7), an impressive plant with narrow grass-like leaves and a greatly inflated woody base. An intriguing member of the Euphorbiaceae was *Pedilanthus cymbiferus*, known as the "little duck." with pinkish triangular flowers and succulent quill-like stems. Another member of the same family was *Cnidoscolus urens* with stinging hairs, known locally as mala mujer or "bad lady." *Agave* was represented by *A. stricta* (Fig. 8) and a plant which we first thought belonged to that group turned out to be a terrestrial Bromeliad, a member of the genus *Hechtia*.

The drive that afternoon took us on a spectacular highway down the eastern slope of the Acultzingo Mts. to Fortín de las Flores at the foot of snow-capped Mt. Orizaba, Mexico's highest peak. We arrived in time to pay a visit to the charming old hacienda which belongs to the Ruiz Galindo family, for whom the hotel is named. A double row of royal palms leads up to the house and on both sides are fine old trees belonging to such tropical genera as *Ficus, Tabebuia* and *Dombeya*, Epiphytic orchids, bromeliads and even cacti (e.g., *Rhipsalis*) were in profusion and aroids, gingers and calla "lilies" *(Zantedeschia)* provided a wealth of color. Still later that afternoon we went to the private garden of Mr. and Mrs. Lau who are doing a marvelous work in rehabilitating poor boys, a project which is made possible by the proceeds from plants and seeds which they raise and sell. Mrs. Lau's specialties are cacti and succulents and we saw many novelties in her extensive collection.

The drive from Fortín back to Mexico City on January 21 led across prairie shrub terrain very similar superficially to the chaparral of our own southwest. Many of the plants we had seen before were now absent, their places taken by different species of *Acacia* and other thorny forms.

On the first morning after our return to the capital we visited the delightful home and garden of Mr. and Mrs. Juan O'Gorman in the Pedregal. Our host and hostess were on hand to welcome us and we spent a very pleasant hour

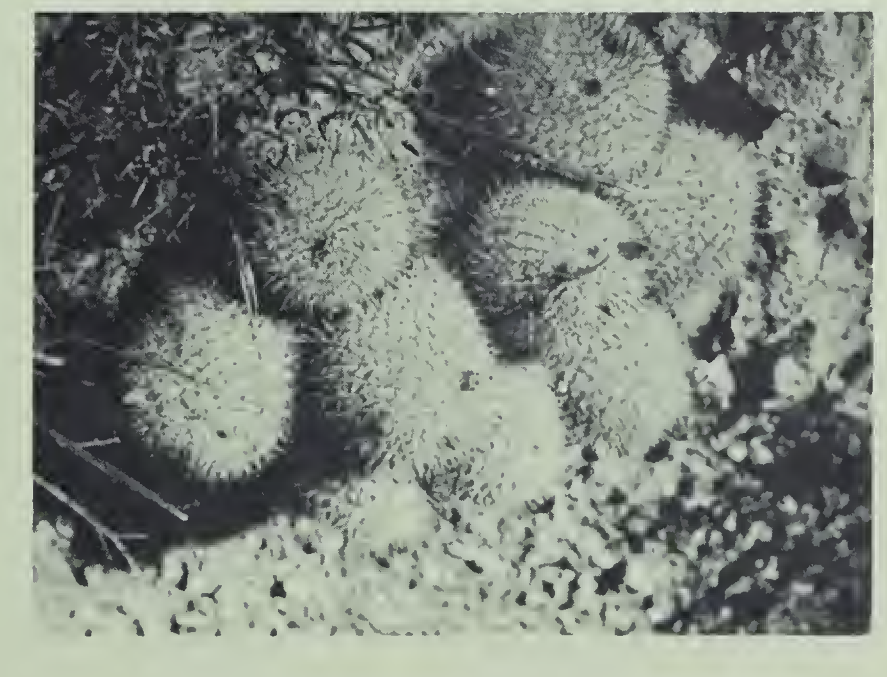

Fig. 6. *Mammillaria collina* at Tehuacán

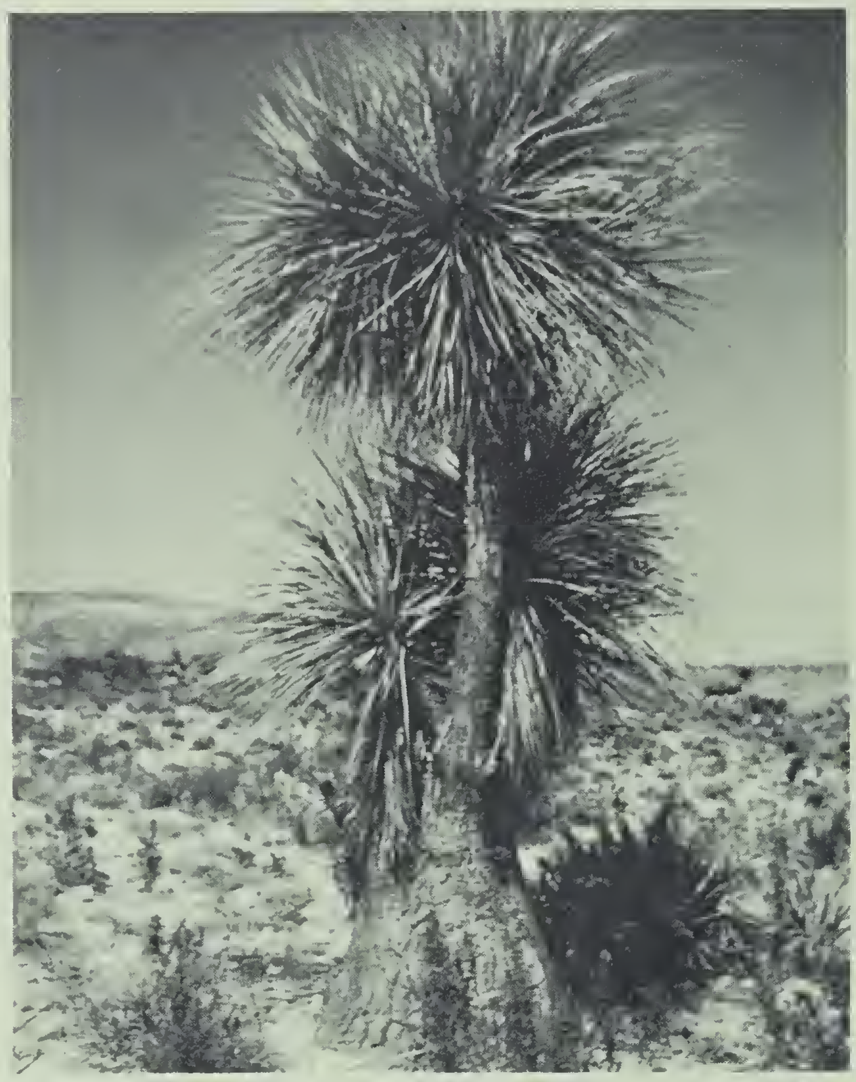

Fig. 7. *Beaucarnia inermis* at Tehuacán

inspecting not only the plants in the garden but the unique house which is built right into the volcanic lava of the Pedregal. Mrs. O'Gorman is a superb artist who has published an excellent book on the wild and introduced flowers of Mexico, and Mr. O'Gorman is one of the country's most distinguished architects. It was he who designed the magnificent library on the campus of the University of Mexico.

From the O'Gorman's we proceeded to the Botanical Garden of the University where we saw the new tropical greenhouse which is dedicated to the memory of the late Dr. Faustino Mirando, one of Mexico's most accomplished botanists. Following lunch we returned to the campus and spent the afternoon in exploring the outdoor portion of the Botanical Garden (Fig. 9).

Since cacti and other succulents constitute such a significant proportion of the flora of Mexico, it was not surprising to find them dominating this garden which is devoted primarily to exhibiting the native vegetation. Even a selected list of species would be out of place here. It must suffice to mention only the more representative genera. For cacti these would be: *Astrophytum, Carnegiea, Cephalocereus, Coryphantha, Echinocactus, Echinocereus, Epiphyllum, Ferocactus, Hylocereus, Mammillaria, Neobuxbaumia, Opuntia, Rhipsalis* and *Stenocactus*; for other succulents: *Aeonium, Agave, Cotyledon, Crassula, Dasylirion, Euphorbia, Echeveria, Hechtia, Pedilanthus, Sedum* and the fantastic palo loco or "crazy stick" *(Senecio praecox)*, so called because of its weird twisted branches which are totally bare most of the year.

In one part of the garden the plants are arranged according to the state in which they occur, making it possible to see in a restricted area species indigenous to Hidalgo, Guerrero, Puebla, etc.

The following day was given over to a pilgrimage to Teotihuacán, with the most celebrated ruins in the Valley of Mexico—the Pyramid of the Moon, the Pyramid of the Sun and the Temple of Quetzalcoatl. Friday, January 24, was a "free" day, one which found most of the members of our party in worshipful admiration of Mexico's incomparable new Museum of Archeology, by many considered the greatest museum they had ever seen.

On Saturday, January 25, we headed north from Mexico City to Tula, the center of the Toltec Kingdom, with its superb heroic statues of its gods, the Atlantes. This region happens, also, to boast one of the finest cactus concentrations in the country and here we saw for the first time the "jumping cholla" *(Opuntia tunicata)* which doesn't really jump, although its fragile spiny branches come off so readily at the slightest contact that they seem to harbor a malignant intent (Fig. 10). Here, also, were *O. imbricata* and several species of *Ferocactus.*

From Tula we drove westward to San Miguel de Allende, arriving in time to visit the School of Fine Arts (the Instituto Allende) and an exhibit of modern paintings.

The following morning, January 26, we went first to see the renowned orchid collection of Mr. Sterling Dickinson, who is Director of the Instituto. This was followed by visits to three delightful homes and private gardens. Mr. Norman MacGregor, Mrs. Margaret García, and Mrs. Margaret Wheeler were our host and hostesses, in that order, and we are deeply grateful to them for permitting us to inspect their beautiful gardens with such a wealth of plant materials. It was in the garden of Mrs. Wheeler that we were able to photograph a handsome plant of *Lemaireocereus marginatus*. We had been seeing this species from the bus, but not before at close quarters.

We are also indebted to Mr. Fred Lape, Director of the George Landis Arboretum in Esperance, New York, who spends his winters in San Miguel and who had arranged these visits for us.

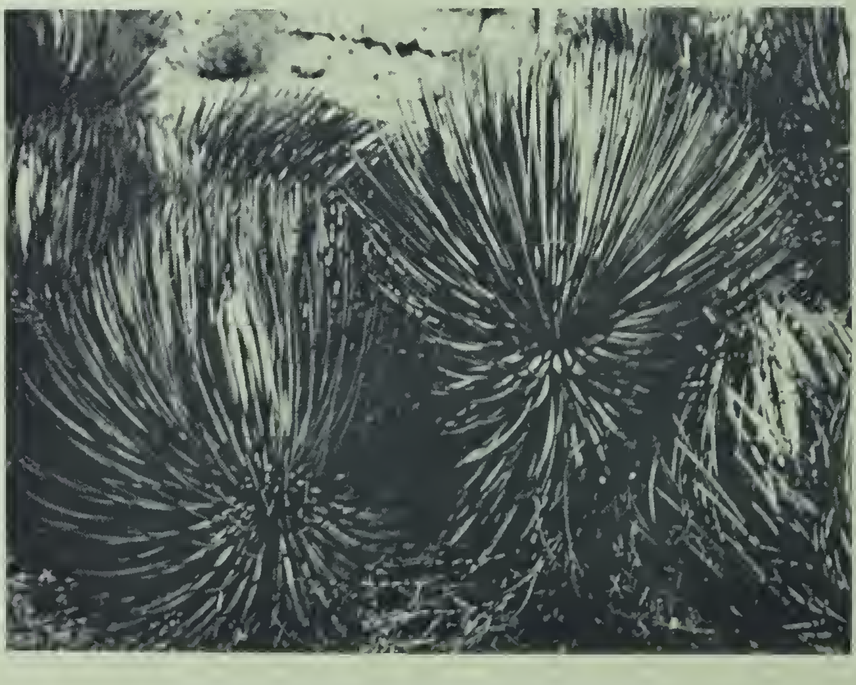

Fig. 8. *Agave stricta* at Tehuacán

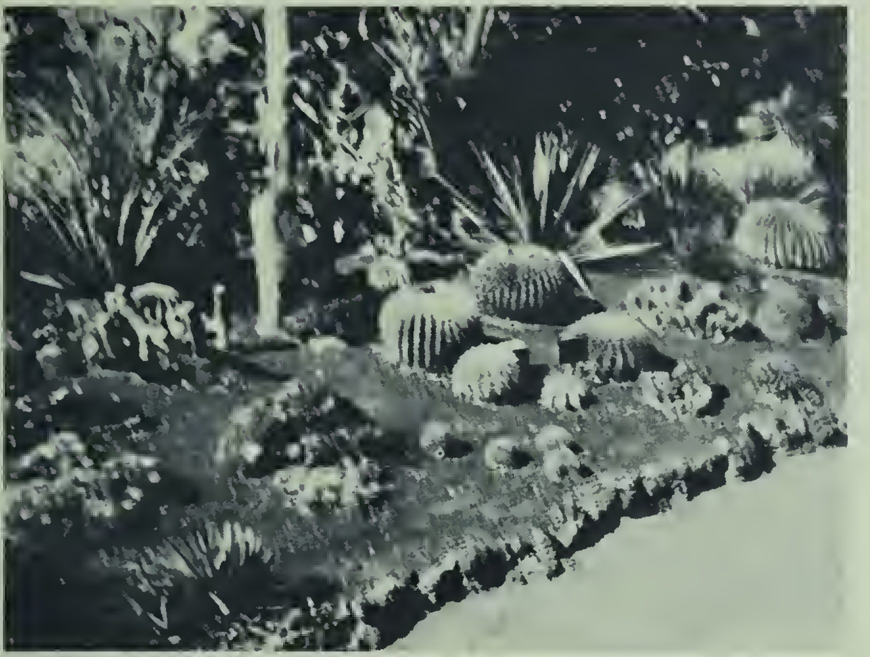

Fig. 9. Entrance to the Botanical Garden, University of Mexico

From San Miguel we drove through Dolores Hidalgo to Guanajuato where, following lunch, some of the party went sight-seeing while others climbed the hillside above the hotel for a look at the native vegetation. The terrain here is dry and stony, occupied largely by cacti and thorny members of the Legume Family. Nearly every shrub and tree was festooned with mistletoe, here a member of the genus *Phoradendron* with brownish foliage, quite unlike our native species in the eastern states. Here, too, was *Urvillea ulmacea* a tendriliform vine belonging to the Sapindaceae, with inflated purplish, three-winged fruits.

The following day we journeyed from Guanajuato to the fishing village of Patzcuaro, where we put up at the picturesque Posada de don Vasco. As is so often the case in Mexico, the grounds of the hotel were planted with a great variety of interesting material and we undertook a short tour before embarking on the boat ride across the lake to the primitive island of Janitzio.

On Tuesday, January 28, we left for Guadalajara, Mexico's second largest city. Our drive took us across a vast region of mesquite vegetation which occupies almost one-fifth of the entire area of Mexico. Predominant here are many kinds of cacti and great variety of acacias and related shrubs or small trees, mostly belonging to the Leguminosae.

Our one full day in Guadalajara was devoted to shopping and sight-seeing, although late in the afternoon a visit was made to the large park near the hotel. Here were fine old trees of *Eucalyptus* and *Cupressus,* impressive specimens of pirúl and a great variety of tropical herbaceous material.

Leaving Guadalajara the following morning we proceeded in a south-eastern direction through Zamora and paused briefly to inspect a geyser and some hot springs. It was interesting to observe that all of the trees (mostly *Acacia)* were bleached white by the gases released by thermal activity.

After stopping at Morelia for lunch we continued on to San José Purua. Our route led across some of the most majestic scenery of Mexico. As we started to ascend the mountains we drove through miles of oak and pine forest. There are more than a hundred species of *Quercus* in Mexico and most of them are evergreen with coriaceous and entire or merely dentate, rather than lobed, leaves. The pines were of several species and mingled with them was the Mexican fir *(Abies religiosa)* and a species of cypress, probably *Cupressus Benthamii.* Identification of conifers from a moving vehicle is at times somewhat less then satisfactory.

After a climb of about an hour we stopped at the Mirador de Mil Cumbres or Lookout of a Thousand Peaks. There may not have been a thousand summits visible on that slightly hazy afternoon, but there were sufficient to elicit expressions of appreciation and a clicking of cameras from the members of our party.

Our arrival at the Balneario of San José was unfortunately too late in the day to enable us to enjoy the riot of color afforded by the plantings on the grounds around the hotel. The following morning, however, offered some brief compensation. Here were African tulip trees, hibiscus, poinsettia, *Bougainvillea, Ixora,* crotons, flame vines, *allamanda,* coral vine *(Antigonon), Thunbergia* and even a specimen of our own southeastern *Magnolia grandiflora.* The one important tropical tree we had despaired of seeing in flower at this season was coming into bloom; this was the royal poinciana or flamboyant tree *(Delonix regia).* Even the tardy frangi-pani *(Plumeria)* was beginning to show some sign of color in its buds.

Thanks to an early start on Friday morning, January 31, we were able to arrive back in Mexico City in time for lunch. Our final afternoon in the capital was climaxed by a visit to Carlotta's Garden inside the walls of the National Palace. This delightful retreat is tastefully planted and well maintained by the government in memory of the Empress to whom one may venture to hope it provided some pleasure during her troubled reign.

On Saturday, February 1, our party left for home.

HBF & JMF

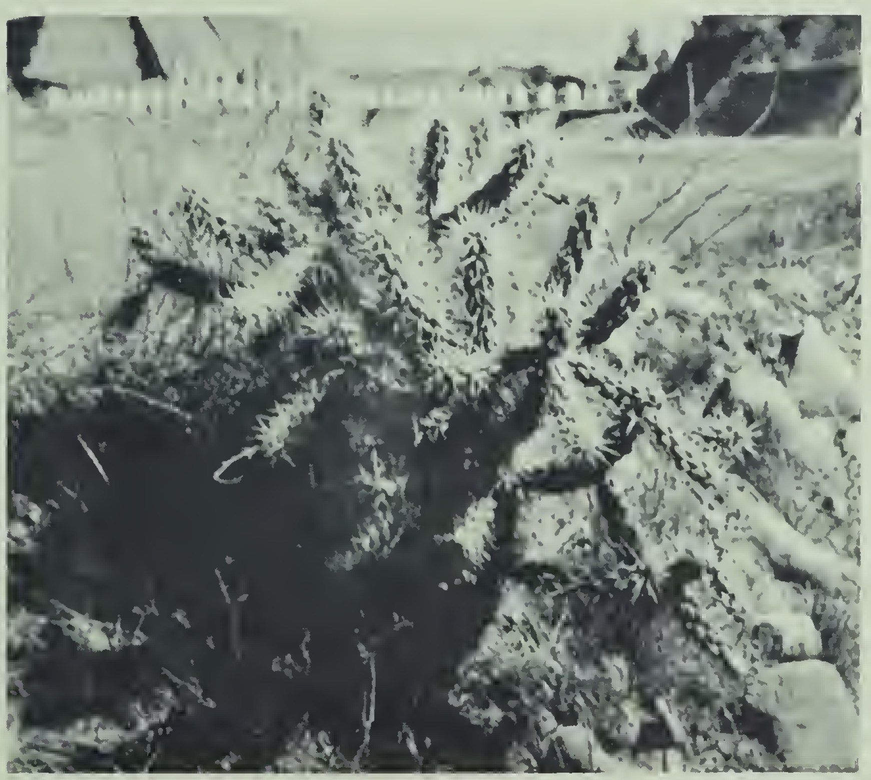

Fig. 10. *Opuntia tunicata* at Tula

THE STAFF

Starting on February 6, Dr. Gordon offered, under the auspices of Longwood Gardens, a series of eight weekly lectures on "Plant Growth Factors."

Dr. Penny has contributed a chapter on the "Pollens of Upper Cretaceous and Lower Tertiary" to a new book entitled Principles and Practices of Palynology. He has also recently identified for Professor Sheldon Judson of Princeton a specimen of *Liquidambar* from the interglacial Cape May formation of New Jersey, about 1,000,000 years of age.

Mr. Tyrrell attended the 23rd American Horticultural Congress held in San Francisco in September, 1968, and on January 18 he gave an illustrated lecture entitled, "Trees and Shrubs from A to Z," in the Downtown Series of the New York Botanical Gardens.

Dr. Zirkle is continuing to publish scholarly articles in the field of Plant Inheritance.

On October 16 Dr. Fogg gave an illustrated lecture on "Botanical Gardens of Scandinavia and Central Europe" at a Members Night at the Brooklyn Botanic Garden, and at an evening meeting of the Cosmopolitan Club of Philadelphia on November 12 he spoke on "Four Centuries of European Botanical Gardens." On November 20 he delivered an illustrated talk on "New and Unusual Trees and Shrubs" before the members of the Horticultural Society of New York. Between January 11 and February 1 the Director and his wife conducted a Garden Tour to Mexico under the joint auspices of the Pennsylvania Horticultural Society and the Horticultural Society of New York. A brief account of this Tour will be found elsewhere in these pages. On February 22 and 23 Dr. Fogg attended the annual convention of the American Magnolia Society which was held in San Francisco.

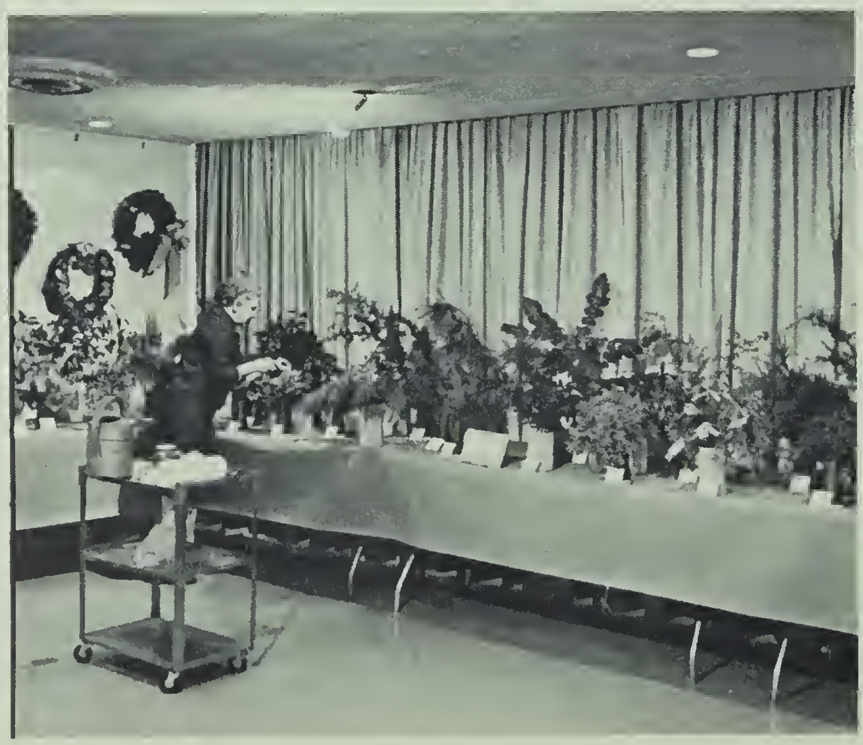

Fig. 11. Exhibit of Evergreens at the Pennsylvania Horticultural Society

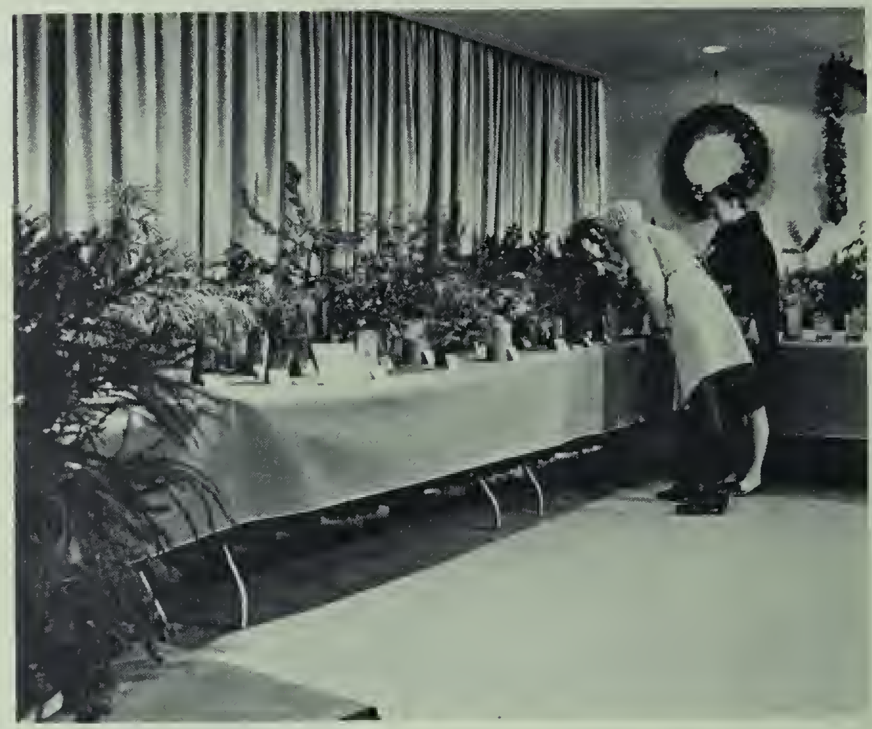

Fig. 12. Exhibit of Evergreens at the Pennsylvania Horticultural Society

AN EXHIBIT OF EVERGREENS

Beginning on December 9 the Arboretum displayed a fine collection of conifers and broad-leaved evergreens in the rooms of the Pennsylvania Horticultural Society at 325 Walnut Street, Philadelphia.

Credit for this exhibit must go to three alumnae of the School, namely, Mrs. George A. Hewitt, Mrs. Karl Rugart, Sr. and Mrs. Edmond G. Thomas. These ladies collected the specimens on the grounds of the Arboretum and labeled and arranged them in containers in the main hall of the Society, where they were seen and enjoyed by hundreds of visitors during the next several weeks (Figs. 11 and 12).

The display contained about 60 species, approximately half of which were conifers, the remainder broad-leaved evergreens.

Among the conifers were three species of cedars *(Cedrus atlantica, C. Deodara* and *C. libani). Torreya nucifera, Sequoia sempervirens, Libocedrus decurrens, Abies homolepis, Thuja occidentalis* and several species each of *Pinus, Picea* and *Chamaecyparis.*

The broad-leaved category included well selected material of such genera as *Mahonia, Berberis, Ilex, Euonymus, Elaeagnus, Aucuba, Pieris,* and *Osmanthus.* Of particular interest was a handsome spray of *Photinia serrulata.* This came from a tree just south of the Administration Building which in the severe winter of 1961-62 was apparently killed. With characteristic optimism, however, Mrs. Barnes refused to let it be removed. It gradually recovered and is now a flourishing specimen some twenty feet tall.